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INSTRUCTION BOOK

FOR

CAT. NO. 497-509

144-174 MHz

DUPLEXER

SERIAL NO. 8668

TRANSMIT 146.76

RECEIVE 146.16

DUPLEXER CAT. NO. 497-509

DESCRIPTION

This duplexer consists of six 505-509 pass-notch resonators arranged with three in each of the two channels. The unit may be used at spacings from 500 KHz to 7 MHz in the 144 - 174 MHz frequency range. A minimum isolation of 85 dB is provided in each of the two channels at 500 KHz separation. Insertion loss is less than 1 dB under these conditions. Each resonator has two adjustments. The larger central adjustment moves both the pass and notch frequencies, while the off-center smaller adjusting screw controls the pass-notch spacing. Any resonator may be adjusted to place the rejection notch on either side of the pass frequency.

TUNING INSTRUCTIONS

The units are normally supplied tuned to the desired frequencies and no readjustment should be required unless there has been a change in frequency.

The following equipment will be required to tune the duplexer:

1. A 50 ohm signal generator with variable attenuator which covers the desired transmit and receive frequencies.
2. A 50 ohm input receiver tuned to the desired transmit frequency.
3. A 50 ohm input receiver tuned to the desired receive frequency.
4. Two six dB attenuators to place in the lines to the receivers.

NOTE: Separate transmitter and receiver cables to duplexer to maintain isolation. Separation to be twelve inches minimum. The use of double shielded or solid outer jacket cable is strongly recommended.

The reject or notch frequency will maintain its spacing to the pass frequency when the pass adjustment of a cavity (the large central screw) is moved several MHz. For example a system operating at 152 and 153 which is moved to 154 and 155 will require a minimum of readjustment if the pass adjustment is made first. It is therefore recommended that the pass adjustments be made first and

that the following step by step procedure be adhered to:

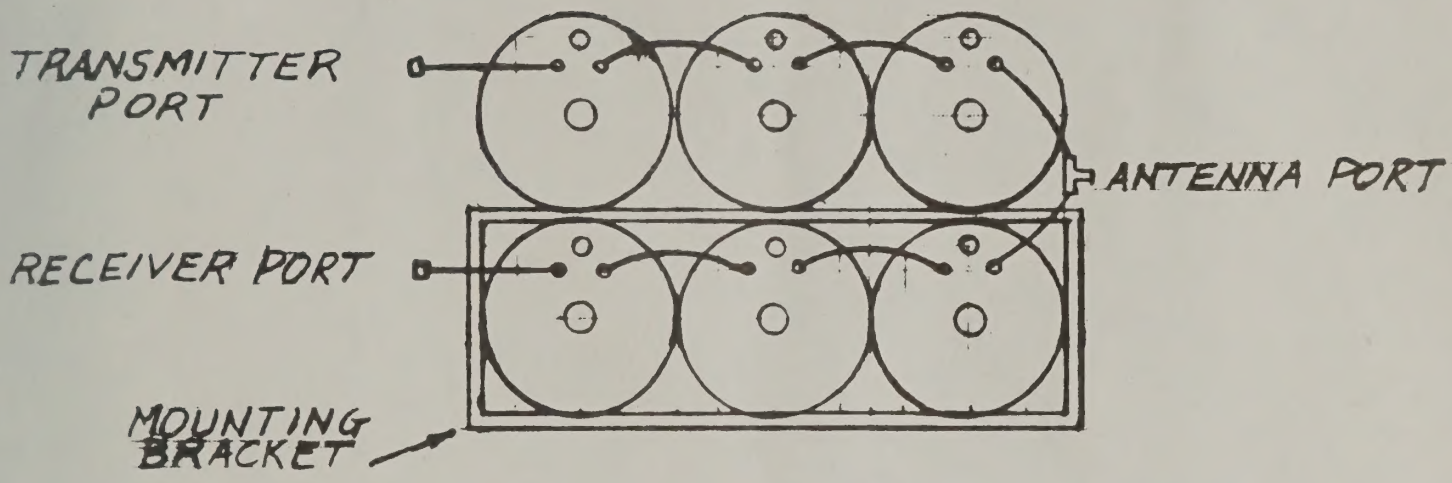
Locate the transmitter channel of the duplexer. Remove the cables from the individual resonators and set them aside. The resonators are to be tuned individually and then recabled together after tuning.

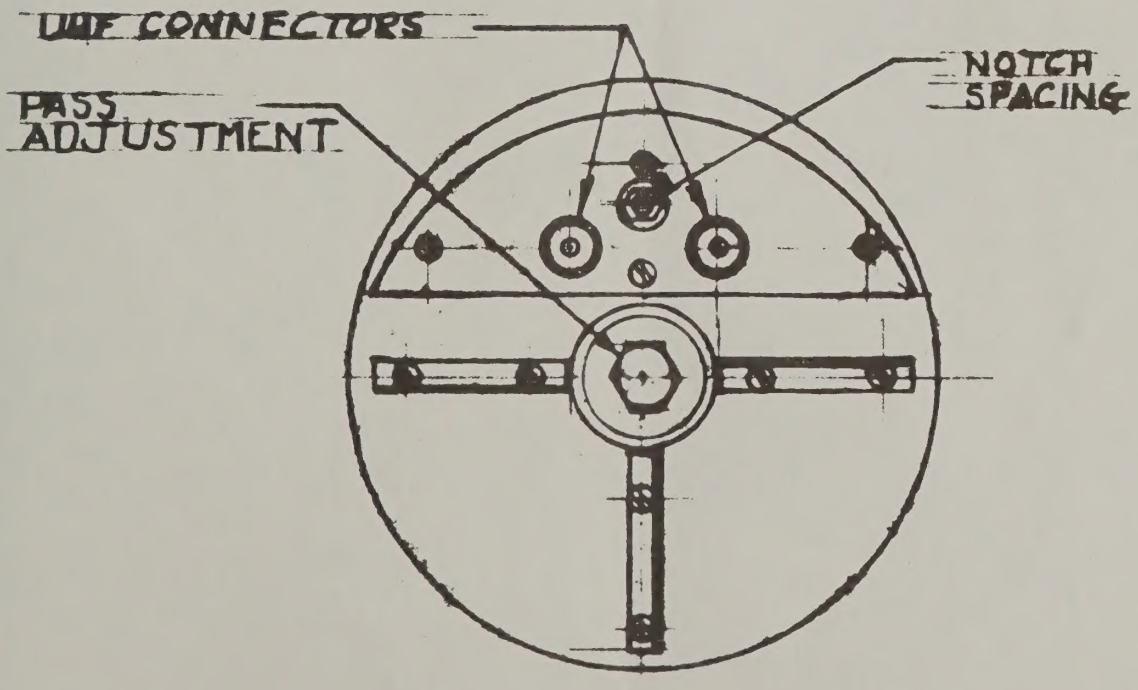
1. Connect the 3 resonators, one by one, between the generator and a receiver tuned to the transmitter frequency and turn the large central tuning screw for maximum transfer of signal at the transmitter frequency.
2. Now connect the 3 resonators, one by one, between the generator and a receiver tuned to the receiver frequency and tune the off-center notching adjustment for minimum transfer of signal at the receiver frequency.

   NOTE: ADJUST SIGNAL GENERATOR OUTPUT TO PREVENT RECEIVER OVERLOAD THROUGHOUT THE ADJUSTMENT PROCEDURE.
3. Repeat steps #1 and #2 on all 3 transmitter resonators, especially if the pass frequency has been moved more than 3 MHz or the pass-stop spacing changed significantly.
4. Repeat step #1 in receiver channel after removing interconnecting cables from the 3 resonators. Tune for maximum signal transfer at the receiver frequency.
5. Repeat step #2 in the receiver channel. Tune the 3 resonators for minimum signal at the transmitter frequency.
6. Repeat steps #4 and #5.
7. The last adjustment to be made on any of the resonators is the notching adjustment. For example, when repeating steps #1 and #2 they should be repeated in that order. The same applies to repeating steps #4 and #5.

The cable harness may now be reconnected and the unit placed into operation. All the interconnecting cables and cables to the antenna "tee" are equal length.

FRONT VIEW OF DUPLEXER WIRING





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